Southern California Coastal Ocean Observing System (SCCOOS)

Region: West Coast, Southern California
Date Initiated: June 2003
(current number: NA17RJ1231, initiated June 2004)

Brief Project Summary

The Southern California Coastal Ocean Observing System (SCCOOS) brings together coastal observations along the Southern California Bight to provide information necessary to address issues of coastal water quality, marine life resources, and coastal hazards. Working interactively with local, state, and federal agencies, resource managers, policy makers, educators, scientists, and the public, SCCOOS will improve the understanding and delivery of coastal observations and allow better management of the coastal ocean environment. The Coastal Observation Technology System (COTS) funds SCCOOS to deploy, maintain, and evaluate new sensors and information technologies as part of a pilot program to develop and implement an integrated, multidisciplinary coastal observatory in the Southern California Bight.

IOOS

This project is contributing to the Integrated Ocean Observing System (IOOS) by

- Building partnerships with regional stakeholders to collect, integrate, and display water quality and coastal observing data
- Collecting and distributing ocean observing data to meet regional needs
- Promoting IOOS through outreach and education efforts

Key Accomplishments

Water Quality Monitoring

- SCCOOS has integrated National Pollutant Discharge Elimination System (NPDES) monitoring data and shoreline water quality data into its regional data system. At present, both ship-based sampling of the ocean Conductivity-Temperature-Depth (CTD) data and indicator bacteria data are being provided to the SCCOOS data management system for planned integration with other observations. Data are typically provided 60 days after collection to allow for quality assurance and control. NPDES permit holders are using the SCCOOS data management system to assess long-term, regional trends.

- The State of California requires the monitoring of shoreline water quality data for indicator bacteria species that are representative of human health risks. These data are typically obtained or provided regularly by county agencies in Southern California at approximately 364 beach sites. SCCOOS collects data from these agencies to access, integrate, and display the data alongside other observing system data streams to facilitate the development of decision-making tools. Five counties in the region already provide data to the SCCOOS data management system weekly, and GIS-based tools are in development. The data delivery system is now in use by both agencies and public.

Data Collection and Distribution

- SCCOOS has integrated a broad suite of observations that include but are not limited to surface currents, satellite imagery, wave conditions and forecasts, meteorological conditions and forecasts, water quality, ocean temperature, salinity, chlorophyll, and density in the form of products and raw data. SCCOOS has deployed in-situ, ocean measurement systems including three oceanographic buoys, two gliders, an underway CTD line on a vessel of opportunity, and five pier-based ocean-monitoring stations. This effort allows scientists, decision makers, and the public access to products that will provide a scientific basis for research, management, and enjoyment of the ocean environment. In August 2005, SCOOS launched its Web site to display and distribute information to regional users: *www.sccoos.org*.

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Surface Current Mapping Radars

- SCCOOS has deployed surface current mapping radars to observe complex circulations that result from land-ocean-atmosphere interactions. These data are being provided to users for applications related to water quality monitoring (aid in identifying the source of pollution impacting beaches and coastal waters), oil spill response (forecasts used for predicting spill dispersion), search and rescue (real-time currents to help narrow search paths), and recreation (wave, wind, and current information to help plan and minimize exposure to severe conditions at sea). In addition, long-range radars deployed at San Diego and the Navy-operated San Clemente Island are being used to monitor regions where offshore lightering of crude oil takes place.

Ocean Modeling

- Modeling efforts are underway to create a nested ocean model that can operate at less than 500-meter resolution and will regularly produce time-dependent, three-dimensional maps of the velocity, ocean air temperatures, and salinity. Future efforts will focus on developing and validating routine modules for basic ecosystem state (nutrients, phytoplankton, and zooplankton) and sediment transport. These models will provide needed insight to manage fisheries and marine protected areas.

Outreach and Education

- SCCOOS has partnered with the Ocean Institute in Dana Point to develop an eight-week program designed to meet 5th-grade earth science standards on the water cycle and weather. Curriculum development for this program will occur over a three-year period and will include teacher focus groups and training sessions in order to develop a program that effectively helps prepare students for California science standards and rigorous new assessments. The program will be piloted with approximately 500 students in three school districts and will eventually be disseminated to 16,000 students in Orange County.

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Project Web Site

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